

# ***Recfishwest Policy Artificial Reefs and Habitat Enhancements***

## **Introduction.**

Changes in the availability of fish, and increasing pressures on existing fish resources often leads people to propose artificial reefs as a means of "solving the problem" or "improving the situation."

This policy provides Recfishwest's approach to proposals for Artificial Reefs and Habitat Enhancements which are aimed at providing benefits for recreational anglers.

This policy should be read in conjunction with Recfishwest Policy - "Criteria for Protection of Recreational Fishing Habitat," available at

<http://www.recfishwest.org.au/PolicyFishHab.htm>

## **Policy.**

Recfishwest will support proposals for artificial reefs which are for the purpose of protecting, regenerating, concentrating or increasing populations of living marine resources with particular emphasis on fish and the resources fish require, or to provide additional areas for recreational fishers.

Recfishwest does not support artificial reefs which simply aggregate fish from surrounding areas but do not result in greater production of fish, that is, artificial reefs which have no net benefit for fish populations.

Recfishwest is also interested in proposals which propose shared use with other users such as commercial fisherman or non extractive users.

For Recfishwest to decide its support for a proposal for an artificial reef, the proposal must cover at least:-

- an analysis of the environmental impact of the proposed artificial reef over a significant period,
- the desired and planned beneficial effects of the project on marine life,
- the potential adverse effects of the project on marine life,
- navigation safety,
- the level of community support,
- site accessibility to the public,
- the monitoring plan,
- the design and construction details.

## **Definitions.**

Artificial reefs result from placing material in an area of the marine environment where that structure does not exist under natural circumstances.

Habitat enhancement occurs when human action improves the habitat for marine organisms compared to what would have existed if that human action had not taken place.

Habitat enhancement often occurs as a consequence of the placement of artificial reefs, however it may be possible without artificial reefs. Inappropriate artificial reefs may not provide habitat enhancement.

The living marine biomass present in a particular area is the net effect of reproduction, growth, immigration, emigration and death. Generally, primary production (virtually wholly plant production) determines the productivity of any particular area. However, finfish abundance can be greatly influenced by habitat features which provide protection from predators. This abundance is a result of attracting fish from surrounding areas in which they feed. This is the situation in which habitat modification can result in increasing fishing pressure without increasing productivity.

For the purpose of this policy, proposals for artificial reefs will be expected to inherently include some degree of habitat enhancement.

#### **Reasons for proposing Artificial Reefs or Habitat Enhancement.**

Proposals for artificial reefs or structures may be to provide:-

- fish attracting and aggregating devices,
- fish spawning, breeding, recruitment and/or nursery areas,
- additional fishing areas for recreational fishers,
- replacement for damaged, degraded or destroyed areas and habitats,
- supplements for or increases in specific types of habitat,
- structures or different environments in an area which otherwise does not have such structures,
- improved marine habitat and provide improved recruitment of various fish species of recreational importance,
- places for species dependent on areas with certain physical and food resources to survive and propagate.

Ideally, artificial reefs should support increased production by providing additional food sources, shelter from predation, a point of physical orientation, increased recruitment habitat for individuals that would otherwise move away or be lost, and lead to vacated space in the natural environment that allows replacement from outside.

Artificial reefs which simply aggregate fish from surrounding areas can have a negative effect on the total population. This can result from increased fishing effort and better catch rate, and potential for over exploitation through better access to fish which were previously dispersed but are now concentrated. **Design and Choice of Location.**

Artificial reef design, fisheries management, and location of artificial reefs may play a significant role in determining whether aggregation or production occurs at a given artificial reef.

Reef layout is very important and factors such as spatial arrangement, orientation to currents and waves and vertical relief need to be considered.

An artificial reef should not be placed on top of productive natural reefs or close to sensitive sites i.e. coral reefs or major sea grass beds. Sites devoid of natural vegetation should usually be selected. The potential for increased productivity will usually be a function of the area of a successful artificial habitat.

### **Monitoring.**

As part of the justification for the artificial reef, a monitoring plan should be prepared which covers biological effects, effectiveness in meeting desired goals, and stability.

Consideration should be given to closing the artificial reef for a period once construction is completed to give fish and other marine life a chance to become established. If possible during this initial period, clear signage should be employed to mark boundaries and describe any activities which are acceptable.

Even if not closed, the reef should be monitored during the initial period to measure how it is performing against its design objectives, as a breeding and recruitment site, and to gather information to help with the design and placement of future artificial reefs.

### **Construction.**

Materials used in the construction could be any inert, long lasting material, like irregularly shaped concrete, hard granite stones, natural rock or other dense long lasting materials.

Not all materials are suitable for the creation of Artificial Reefs. Some may be suitable for one site but might be most unsuitable for another site.

The materials for reef creation ideally need to be durable and have a large multi-dimensional surface area for colonisation with several entrance and exit holes for mobile organisms, water flow and light penetration. The reef material should be designed for long term stability in the chosen location and be suitably weighted so it cannot move around on the sea floor.